

MI FluFocus

Influenza Surveillance Updates Bureaus of Epidemiology and Laboratories



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Current Influenza Activity Levels:

- **Michigan:** No activity
- **United States:** Reporting has concluded for the 2009-2010 influenza season

Updates of Interest:

- **International:** WHO declares the 2009 H1N1 pandemic is now in the post-pandemic period.

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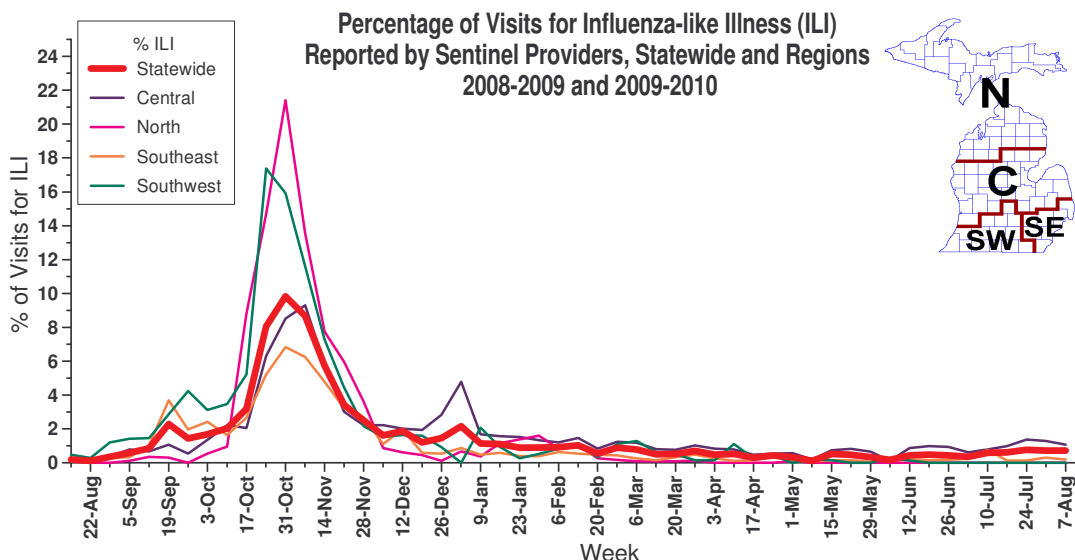
Influenza Surveillance Reports

Michigan Disease Surveillance System: MDSS data for the week ending August 7th indicated that aggregate influenza case reports remained at baseline summer levels. Individual reports, including influenza and 2009 novel influenza cases, remained near the previous week's reported levels of little to no activity. Aggregate influenza cases are similar to levels seen during the same reporting period in 2009, while individual influenza reports are slightly lower.

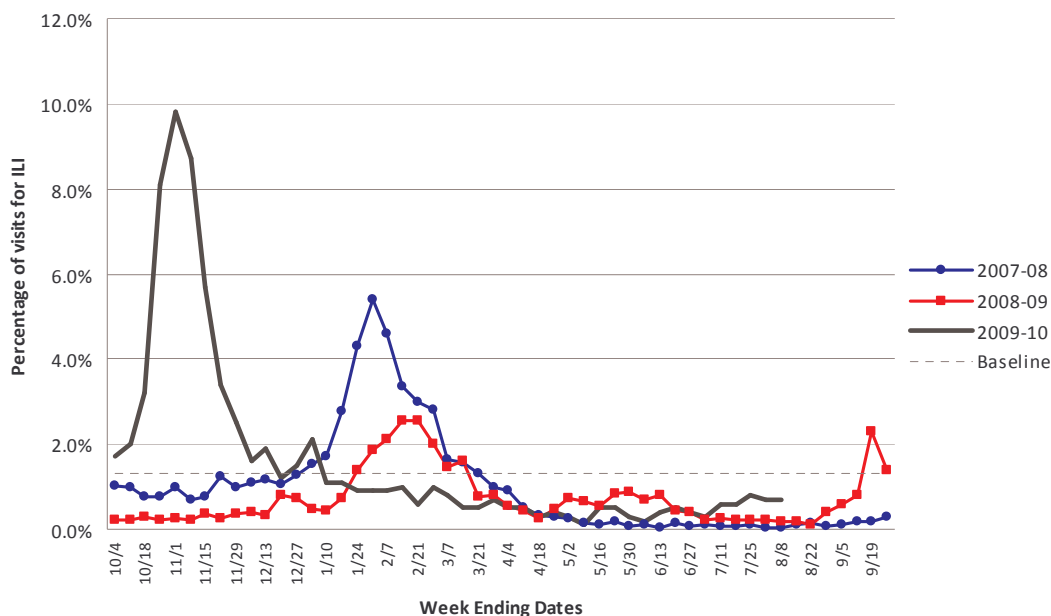
Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints were comparable to the previous week's levels. Both constitutional and respiratory complaints are at similar levels compared to the same reporting period last year. In the past week, there were two constitutional alerts in the SW(1) and N(1) Influenza Surveillance Regions and one respiratory alert in the N Region.

Over-the-Counter Product Surveillance: Over the past week, all OTC product sales remained similar to last week's levels. All indicators are consistent with levels seen at this time last year, except for chest rubs, which are slightly increased, and children's electrolytes, which are slightly decreased.

Sentinel Provider Surveillance (as of August 12): During the week ending August 7, 2010, the proportion of visits due to influenza-like illness (ILI) remained at low at 0.7% overall. Twenty-four patient visits due to ILI were reported out of 3,397 office visits. Thirteen sentinel sites provided data for this report. Activity slightly decreased in two surveillance regions: Central (1.1%) and Southeast (0.2%); and no ILI activity was reported in the remaining two regions: Southwest and North. Please note that a small number of sentinels submitted reports and these rates may change as additional reports are received.



**Percentage of Visits for Influenza Like Illness (ILI) Reported by the US Outpatient
Influenza-like Illness Surveillance Network (ILINet) - Michigan, 2007-2010**



As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of August 7): During August 1-7, two influenza A (H3N2) isolates and one 2009 influenza A (H1N1) isolate were identified at the MDCH Bureau of Laboratories. One of the A (H3N2) cases is epi-linked to a travel-associated A (H3N2) case from July, and the other A (H3N2) case had extensive out of state travel during the exposure period. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 614 influenza isolates:

- 2009 Influenza A (H1N1): 610
- Influenza A (H3): 3
- Influenza B: 1

Six sentinel laboratories reported for the week ending August 7, 2010. All laboratories (SE, SW, C, N) reported no influenza A or B positive test results, with very few specimens being tested.

Michigan Influenza Antigenic Characterization (as of August 12): One 2009 H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010-11 Northern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of August 12): MDCH has received 34 results for antiviral resistance testing for the 2009-2010 season. All of the specimens tested were pandemic 2009 influenza A (H1N1) viruses. Of these results, two viruses have shown resistance to oseltamivir. The first virus was obtained in November 2009 from a 3 year old child from the SE Region with an underlying immunosuppressive condition and had a multiple courses of oseltamivir prior to specimen collection. The second virus was obtained in December 2009 from a 52 year old from the SE Region with an underlying immunosuppressive condition and chronic pulmonary infection; laboratory testing has confirmed that this mutation occurred within the patient during his illness. The 34 specimens tested were distributed as follows: 9 Southeast, 8 Southwest, 9 Central, 2 North, 6 unknown.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at <http://www.cdc.gov/H1N1flu/recommendations.htm>.

Influenza-Associated Pediatric Mortality (as of August 12): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of

influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of August 12): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and three outbreaks associated with positive influenza A tests (2C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 2 long term care facilities. Human metapneumovirus was confirmed in one outbreak in a long term care facility (SW) in February. Adenovirus was confirmed from one outbreak in an elementary school (SW) in May.

During fall 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S - 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) were reported.

National: To access previous Center for Disease Control and Prevention weekly surveillance reports, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

International (WHO Pandemic Update 112 edited), August 6): The overall situation remains largely unchanged since the last update. Globally, pandemic influenza transmission remains most active in parts of South Asia and in limited areas of tropical South and Central America. In the temperate zone of the southern hemisphere, overall seasonal and pandemic influenza activity remains low, except in South Africa, where peak wintertime influenza transmission due to circulating seasonal influenza viruses (H3N2 and type B) might have recently occurred. Seasonal influenza viruses, particularly H3N2 viruses, continue to circulate in parts of Central America, East Africa, and Southeast Asia.

During the 2010 winter of the temperate southern hemisphere, the most active areas of influenza virus transmission have been in South Africa, where the majority of influenza virus detections have been seasonal influenza H3N2 and type B viruses; pandemic influenza virus has been detected there only sporadically. Elsewhere in Argentina, Chile, New Zealand, and Australia, overall influenza activity remains low and below levels observed during recent, mild, pre-pandemic influenza seasons; among the latter three countries, pandemic influenza viruses have been detected most frequently, however, low level co-circulation of seasonal influenza H3N2 and type B has also been observed. In South Africa, the current wintertime epidemic of seasonal influenza appears to have peaked during early July 2010 and stabilized since then; to date, influenza type B viruses have accounted for a greater proportion of influenza viruses detected among severe (SARI) cases than have influenza H3N2 viruses. Chile and Argentina continue to observe low levels of respiratory diseases in the population, and much of what has been observed in recent months has been due to circulation of respiratory viruses other than influenza, particularly RSV. In Australia and New Zealand there has been a sustained upward trend in the rates of ILI over the past 6-8 weeks, particularly in recent weeks, however, overall rates remain well below those observed during the same period in 2009 during the first pandemic wave in the southern hemisphere. Data on the clinical and epidemiological pattern of pandemic influenza virus infection during the current winter season have been limited due to the fact that there has been limited virus transmission to date; however, preliminary data suggests that the pattern has not changed compared to what was seen last winter during the first pandemic wave in the southern hemisphere.

In Asia, the most active areas of pandemic influenza virus transmission currently are in parts of India, and to a much lesser extent, in parts of Nepal and Bhutan. Transmission appears to have peaked in the southern state of Kerala, while transmission remains moderately intense in the western state of Maharashtra, and may be increasing in several eastern states, including Orissa and West Bengal. Limited, preliminary data suggests that the overall intensity and severity of the current regional epidemics in India do not yet appear to exceed what was observed during the first wave in 2009, however, it is too early make a complete assessment of the situation as the regional epidemics are still evolving. Similarly, there has been no evidence to date to suggest that clinical and epidemiological pattern of pandemic influenza virus infection has changed during the current period of active transmission. Overall, across India, approximately 1/4 of respiratory samples tested positive for influenza as of third week of July 2010; however, in at least one region of India, up to 1/3 of respiratory samples tested positive for influenza. In addition to the recent increases in circulation of pandemic influenza viruses in India, there has been, in recent months, active circulation of seasonal influenza type B viruses, and to a lesser extent, seasonal influenza H3N2 viruses. In neighboring Bangladesh, Bhutan, and Nepal, but not Sri Lanka, there is limited evidence of low levels of pandemic influenza virus transmission, including reports of localized outbreaks in Nepal and Bhutan. In Southeast Asia, low to sporadic levels of co-circulating pandemic and seasonal influenza viruses have been detected across the region over the past month.

In the tropical regions of the Americas, active subregional co-circulation of seasonal and pandemic influenza viruses continued to be detected during July 2010. Since early June 2010, predominantly seasonal influenza H3N2 viruses have circulated in Panama, Nicaragua, and Honduras; seasonal influenza B and more recently H3N2 viruses in El Salvador; and, predominantly pandemic influenza and H3N2 viruses in Costa Rica and Columbia.

In sub-Saharan Africa (excluding South Africa), Ghana continued to report sustained transmission of pandemic influenza virus during June and July 2010; during the most recent reporting week, 27% of respiratory samples tested positive for pandemic influenza virus. Limited data indicate that seasonal influenza H3N2 and B viruses continued to circulate at variable levels in parts of eastern Africa and central Africa, respectively. In Cameroon, a sustained period of active transmission of seasonal influenza B viruses, which began during early June 2010, now appears to be subsiding. In Kenya, there has been persistent low level circulation of seasonal H3N2 viruses since late April 2010.

In the temperate regions of the Northern hemisphere, pandemic and seasonal influenza viruses have been detected only sporadically or at very low levels during the past month.

Weekly reporting of influenza activity to the CDC has concluded for the 2009-2010 season.

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Post pandemic - Influenza disease activity has returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. It is important to maintain surveillance and update pandemic preparedness/response plans accordingly.

National, Research (Reuters, August 5): The H1N1 swine flu virus underwent a mutation and used a new trick to spread efficiently in people, another signal to help experts predict whether a flu virus can cause a pandemic, researchers said Friday.

The H1N1 swine flu virus was first identified in people in April 2009 but genetic research later suggested it had in fact been circulating for at least a decade and probably longer in pigs.

"This pandemic H1N1 (virus) has this mutation and is why it can replicate so well in humans," wrote Yoshihiro Kawaoka of the University of Wisconsin-Madison's School of Veterinary Medicine and the University of Tokyo, who co-authored the paper.

"This gives us another marker to help predict the possibility of future flu pandemics."

Typically, a flu virus needs two amino acids -- lysine and asparagines -- on specific sites on its structure before it can jump from animals to people and multiply efficiently in human cells.

But the H1N1 remained a puzzle for scientists because they could not find the amino acids in those two locations.

In an experiment with mice, Kawaoka and colleagues discovered the lysine amino acid was residing instead in a completely different position, but it allowed the virus to be just as effective in adapting to human cells.

The World Health Organization said early in June the H1N1 pandemic was not yet over, although its most intense activity has passed in many parts of the world.

Children and people with underlying conditions that weaken the immune system such as asthma, diabetes, heart disease and pregnancy have been the hardest hit.

[Ed. Note: This article is available online at <http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1001034>]

International, Pandemic (WHO, August 10): *Director-General statement following the ninth meeting of the Emergency Committee*

The Emergency Committee held its ninth meeting by teleconference on 10 August 2010.

The Emergency Committee was given an epidemiological overview and update of the global H1N1 (2009) pandemic influenza situation by the secretariat. Particular emphasis was placed on the epidemiological situation in the southern hemisphere, where many countries are experiencing their winter influenza season. The update also covered certain countries reporting active pandemic influenza virus transmission. Representatives of the governments of Argentina, Australia, India, New Zealand and South Africa described the most recent developments in their countries. Particular attention was given to the situation in some countries which are currently experiencing intense influenza epidemics largely caused by the H1N1 (2009) virus.

While noting such epidemics with concern, the Committee based its assessment on the global situation. Members noted clear indications that influenza, worldwide, is transitioning towards seasonal patterns of transmission. In the majority of countries, out-of-season outbreaks are no longer being observed, and the intensity of H1N1 (2009) transmission is lower than that reported during 2009 and early 2010. Members further noted that the H1N1 (2009) virus will likely continue to circulate for some years to come, taking on the behaviour of a seasonal influenza virus.

The Committee agreed that the global influenza situation no longer represented an extraordinary event requiring immediate emergency actions on an international scale. In their view, the public health emergency of international concern, recommended following the emergence of the H1N1 (2009) virus, should be considered over. The Committee further noted that the temporary recommendations adopted in response to the public health emergency of international concern were terminated.

After extensive discussions, the Committee unanimously advised the Director-General that the world was no longer experiencing an influenza pandemic, but that some countries continue to experience significant H1N1 (2009) epidemics. Members agreed that waiting for winter data from the southern hemisphere had been necessary in order to make such a global assessment with reasonable confidence.

The Committee noted that the information from India, New Zealand and the Pacific Island countries was consistent with the expectation that individual countries might experience significant levels of influenza associated with the H1N1 (2009) virus in the future, and expressed the need for national authorities to continue to implement outbreak response measures in those countries when such events occur. The Committee strongly emphasized the need for States to maintain vigilant disease surveillance and monitoring for influenza outbreaks and influenza-like illness as well as ensuring the availability of necessary public health measures for preventing and controlling influenza. Such measures include the continued use of H1N1 (2009) pandemic or seasonal influenza vaccines where appropriate and available. The Committee noted that the uptake of pandemic vaccine in some Pacific Island countries appeared sufficiently high to reduce the risk of outbreaks in these countries.

Based on the advice of the Emergency Committee, and her own assessment of the situation, the Director-General determined that the world was no longer in an influenza pandemic and therefore terminated the public health emergency of international concern in accordance with the International Health Regulations (2005).

In light of these determinations, the Director-General thanked the members and the advisor of the Emergency Committee for their diligent service and expert advice, which were of great importance to international public health.

The work of the Emergency Committee now being ended, the names, affiliations and declared interests of the Committee members and advisor will be published on the WHO website as soon as possible.

International, Human (WHO, August 12): The Ministry of Health of Egypt has announced a new human case of A(H5N1) avian influenza infection. The case is a 2 year-old female from Elsalam district, Cairo. She developed symptoms on 2 August, was hospitalized on the same day and received oseltamivir treatment. She is currently under treatment in hospital. Investigations into the source of infection indicated that the case had exposure to sick and dead poultry. The case was confirmed by the Egyptian Central Public Health Laboratories, a National Influenza Center of the WHO Global Influenza Surveillance

Network (GISN). Of the 111 laboratory confirmed cases of avian influenza A(H5N1) reported in Egypt, 35 have been fatal.

Michigan Wild Bird Surveillance (USDA, as of August 12): For the 2010 season (April 1, 2010-March 31, 2011), highly pathogenic avian influenza H5N1 has not been recovered from 9,803 samples tested nationwide, including 673 Michigan samples (5 live bird, 658 hunter-killed birds, 10 morbidity/mortality). For more information, visit the HPAI Early Detection Data System at <http://wildlifedisease.nbii.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

International Poultry and Wild Bird Surveillance (OIE): Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm.

For questions or to be added to the distribution list, please contact Susan Peters at PetersS1@michigan.gov

Contributors

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Table 1. H5N1 Influenza in Humans - Cases up to August 12, 2010. http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_08_12/en/index.html. Downloaded 8/12/2010. Cumulative number of lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	1	1	10	8
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	1	1	39	26
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	21	8	111	35
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	21	19	6	5	168	139
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	7	2	119	59
Total	4	4	46	32	98	43	115	79	88	59	44	33	73	32	36	17	504	299